

Mr. Anthony D. Barfield, Art Unit 3636; 09/554,464; Docket No: PAT6C; Giok Djien Go; -18-

a pair of latch plates (10.1b), connected to the shoulder cap (10.2a, 10.2c), with open apertures, in which the belt portions are loosely secured by quick-release pins (10.10), when the one-piece shoulder- and neck holder and the seat belt are fitted together, and released by withdrawal thereof for removal, when the one-piece shoulder- and neck holder is withdrawn; and

at least one pair of buckle assemblies (18a / 19a to 18n / 19n), attached in a seat backrest (3.2a, 3.2c);

wherein

a passenger is restrained by the seat belt (1a, 1c, 1e) and his shoulders and his neck are restrained by the shoulder cap (10.2a, 10.2c) and neck cap (10.4a, 10.4c) upon plug-in connection of the latch plates (10.1b) with the buckle assemblies (18a / 19a to 18n / 19n); and

at least one belt shoulder portion of the seat belt (1a, 1c, 1e) is extended over the corresponding open aperture of the shoulder cap and loosely secured in the open aperture of the respective latch plate.

5. The restraint system according to claim 2, wherein the shoulder cap (10.2e), recessed about a supporting tube (3.61) of a head rest (3.6), is reinforced by a reinforcing plate (10.13).

6. The restraint system equipped with a shoulder- and neck holder according to claim 2, further comprising a neck holder, having a pair of neck caps (10.4, 10.4b), attached to the pair of shoulder caps (10.2e), to restrain the passenger's neck in the operative position.

7. The restraint system according to claim 6 wherein the drive apparatus (80) is activated by a separately operated switch.

8. The restraint system according to claim 6, wherein the drive apparatus is activated by a controller, monitoring the speed, in excess of a threshold speed.

9. The restraint system according to claim 6, wherein the drive apparatus is activated by an accelerator pedal.

10. The restraint system according to claim 6, wherein the drive apparatus is activated when a sensor senses an acceleration, which exceeds a threshold acceleration.

11. The restraint system according to claim 6, wherein upon a pressure on a release button (87a to 87c) of the seat the drive apparatus (80) moves the shoulder- and neck holder back from the operative position to the resting position.

12. The restraint system according to claim 6, wherein the buckle assembly of the seat belt has a master release button (84), provided with a release wire connecting to a switch of the drive apparatus (80), where the master release button (84), when depressed, disengages the latch plate and moves the shoulder- and neck holder back from the operative position to the resting position.

G-US 010904 1-space

Mr. Anthony D. Barfield, Art Unit 3636; 09/554,464; Docket No: PAT6C; Giok Djien Go; -21-

43. The restraint system according to claim 42, wherein a guide piece (4.7a), fastened to the seat frame, has

a pair of engaging parts (4.10a), form-locking connected to the corresponding apertures of a housing (4.8a) of the buckle assembly; and

5 a recess (4.5a) to loosely guide a tie band (1.1a), having a first and second end connected to the buckle assembly and the couple member.

44. The restraint system according to claim 42, wherein a guide piece (4.7b), fastened to the seat frame, has

10 a pair of engaging parts (4.10b), form-locking connected to the corresponding apertures of a housing (4.8b) of the buckle assembly; and

a longitudinal groove (4.5b) to loosely guide a tie band (1.1b), having a first and second end connected to the buckle assembly and the couple member.

45. The restraint system according to claim 42, wherein a housing (4.8c), movable along a pair of tubes (27.3) of the seat backrest frame and latchable thereon, has

15 an aperture to receive an engaging part (4.10c) of the buckle assembly, through a hole (2.3) of which a wire is protruded and both end portions of the wire, serving as tie bands, are secured by a mutual bracket (1.7); and

two holes (4.5c) to loosely guide the tie bands, connected to the couple members.

46. The restraint system according to claim 13, wherein the buckle assembly of the seat belt has a master release button (84),

20 provided with release wires connecting to electrical motors (4.2b) of release buttons of the pairs of buckle assemblies, to one of which the latch plates of the holder are plug-in connected;

25 where the master release button (84), when depressed, disengages all the latch plates of the holder and seat belt.

47. The restraint system according to claim 13, wherein the buckle assembly of the seat belt has a master release button (84),

provided with release cables (4.2) connecting to release buttons of the pairs of buckle assemblies, to one of which the latch plates of the holder are plug-in connected;

30 where the master release button (84), when depressed, disengages all the latch plates of the holder and seat belt.

48. The restraint system according to claim 3, wherein the shoulder holder is attached to the seat for the purpose of storage and detachable therefrom by depressing a release button (87a to 87c) of the seat.

35 49. The restraint system according to claim 13, wherein the shoulder- and neck holder is attached to the seat for the purpose of storage and detachable therefrom by depressing a release button of the seat.

G-US 010904 1-space

Mr. Anthony D. Barfield, Art Unit 3636; 09/554,464; Docket No: PAT6C; Giok Djien Go; -22-

50. An energy-absorbing, vibration-dampening safety seat according to claim 49, wherein sets of vibration-dampening energy absorbers, the seat belt, holder and seat are integrated into a safety adult-seat;

5 which is transformed into a safety child-seat when a detachable front portion of the seat cushion (3.1a) serves as a shoulder- and neck holder (10a), the latch plates of which are plug-in connected to one of the pairs of buckle assemblies (18a / 19a to 18n / 19n) of the seat backrest, to restrain shoulders and a neck of a belted child and the space thereof is exploited to accommodate legs of the child sitting on the rear portion thereof, where the safety child-seat can be converted back into the safety adult-seat.

10 51. An energy-absorbing, vibration-dampening safety baby-cot according to claim 50, wherein the safety child-seat is transformed into a safety baby-cot when the seat backrest is flipped downwards; where the safety baby-cot can directly be converted back either into the safety child-seat or
15 into the safety adult-seat.

52. The restraint system according to claim 13, wherein a common release button (84a), located on the seat cushion, is provided with release cables (4.2) connecting to release buttons of the pairs of buckle assemblies, to one of which the latch plates of the holder are plug-in connected;
20 where the common release button (84a), when depressed, disengages the latch plates of the holder while the passenger remains belted.

G-US 010904 1-space

Mr. Anthony D. Barfield, Art Unit 3636; 09/554,464; Docket No: PAT6C; Giok Djien Go; -25-

a passenger is restrained by the seat belt (1a, 1c, 1e) and his shoulders and his neck are restrained by the shoulder cap (10.2a, 10.2c) and neck cap (10.4a, 10.4c) upon plug-in connection of the latch plates (10.1b) with the buckle assemblies (18a / 19a to 18n / 19n); and

5 at least one belt shoulder portion of the seat belt (1a, 1c, 1e) is extended over the corresponding open aperture of the shoulder cap and loosely secured in the open aperture of the respective latch plate.

5. The restraint system according to claim 2, wherein the shoulder cap (10.2e), recessed about a supporting tube (3.61) of a head rest (3.6), is reinforced by a reinforcing plate
10 (10.13).

6. The restraint system equipped with a shoulder- and neck holder according to claim 2, further comprising a neck holder, having a pair of neck caps (10.4, 10.4b), attached to the pair of shoulder caps (10.2e), to restrain the passenger's neck in the operative position.

7. The restraint system according to claim 6 wherein the drive apparatus (80) is activated by
15 a separately operated switch.

8. The restraint system according to claim 6, wherein the drive apparatus is activated by a controller, monitoring the speed, in excess of a threshold speed.

9. The restraint system according to claim 6, wherein the drive apparatus is activated by an accelerator pedal.

20 10. The restraint system according to claim 6, wherein the drive apparatus is activated when a sensor senses an acceleration, which exceeds a threshold acceleration.

11. The restraint system according to claim 6, wherein upon a pressure on a release button (87a to 87c) of the seat the drive apparatus (80) moves the shoulder- and neck holder back from the operative position to the resting position.

25 12. The restraint system according to claim 6, wherein the buckle assembly of the seat belt has a master release button (84), provided with a release wire connecting to a switch of the drive apparatus (80), where the master release button (84), when depressed, disengages the latch plate and moves the shoulder- and neck holder back from the operative position to the resting position.

G-US 010904 2-space

Mr. Anthony D. Barfield, Art Unit 3636; 09/554,464; Docket No: PAT6C; Giok Djien Go; -29-

a pair of engaging parts (4.10b), form-locking connected to the corresponding apertures of a housing (4.8b) of the buckle assembly; and
a longitudinal groove (4.5b) to loosely guide a tie band (1.1b), having a first and second end connected to the buckle assembly and the couple member.

- 5 45. The restraint system according to claim 42, wherein a housing (4.8c), movable along a pair of tubes (27.3) of the seat backrest frame and latchable thereon, has
an aperture to receive an engaging part (4.10c) of the buckle assembly, through a hole (2.3)
of which a wire is protruded and both end portions of the wire, serving as tie bands, are
secured by a mutual bracket (1.7); and
10 two holes (4.5c) to loosely guide the tie bands, connected to the couple members.

46. The restraint system according to claim 13, wherein the buckle assembly of the seat belt
has a master release button (84),
provided with release wires connecting to electrical motors (4.2b) of release buttons of the
pairs of buckle assemblies, to one of which the latch plates of the holder are plug-in
15 connected;
where the master release button (84), when depressed, disengages all the latch plates of the
holder and seat belt.

47. The restraint system according to claim 13, wherein the buckle assembly of the seat belt
has a master release button (84),
20 provided with release cables (4.2) connecting to release buttons of the pairs of buckle
assemblies, to one of which the latch plates of the holder are plug-in connected;
where the master release button (84), when depressed, disengages all the latch plates of the
holder and seat belt.

G-US 010904 2-space

Mr. Anthony D. Barfield, Art Unit 3636; 09/554,464; Docket No: PAT6C; Giok Djien Go; -30-

48. The restraint system according to claim 3, wherein the shoulder holder is attached to the seat for the purpose of storage and detachable therefrom by depressing a release button (87a to 87c) of the seat.

49. The restraint system according to claim 13, wherein the shoulder- and neck holder is attached to the seat for the purpose of storage and detachable therefrom by depressing a release button of the seat.

50. An energy-absorbing, vibration-dampening safety seat according to claim 49, wherein sets of vibration-dampening energy absorbers, the seat belt, holder and seat are integrated into a safety adult-seat;

10 which is transformed into a safety child-seat when a detachable front portion of the seat cushion (3.1a) serves as a shoulder- and neck holder (10a), the latch plates of which are plug-in connected to one of the pairs of buckle assemblies (18a / 19a to 18n / 19n) of the seat backrest, to restrain shoulders and a neck of a belted child and the space thereof is exploited to accommodate legs of the child sitting on the rear portion thereof;

15 where the safety child-seat can be converted back into the safety adult-seat.

51. An energy-absorbing, vibration-dampening safety baby-cot according to claim 50, wherein

the safety child-seat is transformed into a safety baby-cot when the seat backrest is flipped downwards;

20 where the safety baby-cot can directly be converted back either into the safety child-seat or into the safety adult-seat.

52. The restraint system according to claim 13, wherein

a common release button (84a), located on the seat cushion, is provided with release cables

25 (4.2) connecting to release buttons of the pairs of buckle assemblies, to one of which the latch plates of the holder are plug-in connected;

where the common release button (84a), when depressed, disengages the latch plates of the holder while the passenger remains belted.

G-US 010904 2-space